6. Mitigation Monitoring Program

The California Department of Water Resources (CDWR) proposes to construct a reservoir east of the bifurcation of the East Branch and West Branch of the California Aqueduct in southern Kern County; nine miles east of Gorman, California (see Figures 2-1 and 2-2 in Section 2 – Project Description). The Tehachapi East Afterbay project (proposed project) would provide additional storage to the existing Tehachapi Afterbay (Pool 42). This additional storage would allow downstream facilities on the East Branch, and to a lesser extent, the West Branch, to continue operations for short periods without relying on the pumping operations of the Valley String Pumping Plants, thereby reducing pumping during peak electrical demand periods and providing increased operational flexibility. Pumping could then be shifted from expensive, peak periods of power demand to off-peak periods when power rates are lower, resulting in cost savings and the statewide benefit of more efficient and stable energy consumption.

Construction activities for the Tehachapi East Afterbay (East Afterbay) would occur over a 17-month period as estimated from the most recent project design information, and is tentatively scheduled for February 2005 to June 2006. The proposed project would consist of a reservoir (afterbay) with a water surface area that would cover approximately 71 acres, based on the normal maximum water surface elevation (of 3,100 feet), and have a gross storage capacity of approximately 1,159 acre-feet (AF) (see Figures 2-3 and 2-4 in Section 2 – Project Description). Virtually the entire reservoir pool would be constructed in excavation.

The purpose of this Mitigation Monitoring Plan is to ensure effective implementation of the mitigation measures imposed by the CDWR. This plan includes:

- A brief description of the impact expected to occur from the proposed project
- The mitigation measure
- The actions required to implement these measures
- Monitoring/Reporting requirements
- Timing of the implementation (Implementation Phase)

The CDWR will review all reports and provide comments. Comments will be provided on these documents to devise an effective and feasible plan to accomplish the intended reduction in impacts, including assurance that objective performance criteria are in place before monitoring begins.

Table 6-1. Mitigation Monitoring Program

Impact	Mitigation Measures	Monitoring/ Reporting Requirement	Implementation Phase/Action
	Aesthetics		
Operation of the East Afterbay would require exterior lighting during nighttime hours, which would impact current and future residences in the area.	**AES-1:** The construction contractor shall install exterior lighting with shielding sufficient to reduce glare to no more than five feet from the subject property line. Security lighting shall have low wattage and prismatic glass coverings to minimize any potential light and glare impacts.	CDWR will incorporate appropriate lighting requirements into the plans and specifications, and require compliance by the construction contractor. CDWR will inspect the installation of lighting for compliance with the specifications.	Prior to and upon completion of construction activities.
	Air Quality		
Construction emissions would exceed the emission thresholds, and would therefore cause a short-term impact to local air quality conditions.	**AQ-1:** CDWR shall develop a Fugitive Dust Emission Control Plan (FDECP). Measures to be incorporated into the plan include, but are not limited to the following: • Water active construction sites at least three times per day, except during periods of rainfall or those areas that have been temporarily covered, have vegetative ground cover, or have had chemical stabilization applied according to the FDECP. • Enclose, cover, water twice daily, or apply non-toxic soil binders according to manufacturer's specifications to exposed piles (i.e., gravel, dirt and sand) with a five percent or greater silt content. • Increase the frequency of watering, or implement other additional fugitive dust mitigation measures, to all disturbed fugitive dust emission sources when wind speeds (as instantaneous wind gusts) exceed 25 miles per hour (mph). Operations causing significant fugitive dust (i.e. grading and other earthmoving operations) shall be suspended when winds carry visible dust plumes beyond the property line despite implementation of all feasible dust control measures. • Apply water three times daily, except during periods of rainfall, to all unpaved road surfaces. • Topsoil stockpiled for more than two days shall be covered, kept moist and/or treated with soil binders to prevent dust generation. Although keeping the stockpile moist can prevent dust generation, it may not provide protection from water erosion and therefore additional protection measures may be necessary (see BIO-2). • Topsoil stockpiled for more than one year shall be planted and watered to sustain biological components as well as prevent dust emissions (see BIO-2). • Maintain on-site vehicle travel to the lowest practical speeds to reduce fugitive dust emissions. • Sweep streets at the end of the day if visible soil material is carried onto adjacent public paved roads (Whenever possible, use water sweepers with reclaimed water). The use of dry rotary brushes is expressly prohibited except where preceded or accompanied by sufficient wetting to limit the visible dust emissions. Use of blower devices is expressly forbidden. • All vehicle tires shall be inspected, are to be free or dirt, and washed as necessary prior to entering paved roadways. • Install wheel washers or wash the wheels of trucks and other heavy equipment where vehicles exit the site.	CDWR will incorporate the requirements of the FDECP in the plans and specifications, and require compliance by the construction contractor. CDWR will monitor compliance at the construction site.	Prior to and during construction activities.

Table 6-1. Mitigation Monitoring Program

Impact	Mitigation Measures	Monitoring/ Reporting Requirement	Implementation Phase/Action
	• Gravel ramps of at least 20 feet in length must be provided at the tire washing/cleaning station. • Cover all trucks hauling soil and other loose material, or require at least two feet of freeboard. • Establish a vegetative ground cover on unpaved areas within 21 days after active construction operations have ceased. (Ground cover must be of sufficient density to expose less than 50 percent of unstabilized ground within 90 days of planting, and at all times thereafter). • When backfilling during earthmoving operations, dedicate a water truck or large hose to backfilling equipment and operations and apply water as needed; or, cover or enclose stationary backfill material; if needed, mix backfill soil with water prior to moving. Empty loader buckets slowly and minimize their drop heights. Immediately after backfilling, apply soil stabilization compounds to form a crust. • When clearing and grubbing, pre-wet surface soils in the operation area; stabilize surface soil with dust palliative unless construction activities are to immediately take place; and use water or dust palliative to form a crust on soil immediately following clearing/grubbing. • During cut and fill activities, pre-water with sprinklers or wobblers to allow time for penetration; pre-water with water trucks or water pulls to allow time for penetration. • Post a publicly visible sign with the telephone number to contact regarding dust complaints. The construction contractor shall respond and take corrective action with 24 hours.		
	AQ-2: The construction contractor shall ensure that all mechanical equipment associated with project construction is properly tuned and maintained in accordance with the manufacturer's specifications.	CDWR will incorporate equipment maintenance requirements into the plans and specifications, and require compliance by the construction contractor.	Prior to and during construction activities.
	AQ-3: Use CARB certified ultra low sulfur diesel (ULSD) fuel containing 15 ppm sulfur or less.	CDWR will incorporate construction equipment fuel requirements into the plans and specifications, and require compliance by the construction contractor.	During construction activities.
	AQ-4: Restrict diesel engine idle time, to the extent practical, to no more than 10 minutes.	CDWR will incorporate diesel engine idle time requirements into the plans and specifications, and require compliance by the construction contractor. CDWR will monitor compliance at the construction site.	During construction activities.
	AQ-5: Schedule all material deliveries to the construction site outside of peak traffic hours, and minimize other truck trips during peak traffic hours.	CDWR will incorporate material delivery schedules into the plans and specifications, and require compliance by the construction contractor. CDWR will monitor compliance at the construction site.	During construction activities.

Table 6-1. Mitigation Monitoring Program

Impact	Mitigation Measures	Monitoring/ Reporting Requirement	Implementation Phase/Action
	AQ-6: The engine size of construction equipment shall be the minimum practical size.	CDWR will incorporate engine size limitations into the plans and specifications, and require compliance by the construction contractor.	During construction activities.
	AQ-7: Apply non-toxic soil binders to on-site access roadways, staging areas, and parking area(s) throughout construction, as necessary to reduce fugitive dust emissions.	CDWR will incorporate the application of non-toxic soil binders to access roadways into the plans and specifications, and require compliance by the construction contractor. CDWR will monitor to verify that non-toxic soil binders have been appropriately applied.	During construction activities.
Construction and/or operation of the proposed project would have the potential to contribute to cumulatively significant impacts.	**AQ-1 through AQ-7** (above).	Please refer to AQ-1 through AQ-7 (above).	Prior to and during construction activities.
Construction of the proposed project would expose sensitive receptors to substantial pollutant concentrations.	**AQ-1 through AQ-7** (above).	Please refer to AQ-1 through AQ-7 (above).	Prior to and during construction activities.
	Biological Resources		
Project construction or operation may affect habitat used by bird species that are federal and/or state species of concern, protected by the Migratory Bird Treaty Act and protected by the California Fish and Game code; sensitive or special status species may be present in the area at the time of construction or during operational activities.	**BIO-1** The surface of temporarily impacted areas and the surface of the spoil pile(s) shall be seeded with a native seed mix suited to local climatic and soil conditions. Species known to exist at the site based on survey lists provided in Appendix C or from other surveys within the project area shall be preferred in the seed mix. Unlike the temporarily disturbed areas, the objective of revegetating the spoil pile(s) shall not be to reestablish preexisting vegetation conditions, but rather to ensure stability of the surface. The seeding surface shall be prepared by replacement of topsoil, scarification of compacted surfaces and wetting to maximize seed germination. The method of seeding shall be suited to the windy conditions that persist within the project area (i.e., broadcast seeding shall not be used). Temporary irrigation shall be used occasionally to establish plants. In order to facilitate reestablishment of native plant species in the seed mix and already present in the seed bank in the replaced topsoil, nonnative species shall be removed during the first two growing seasons, primarily through manual and other mechanical means in temporarily disturbed areas only (i.e., the spoil piles are excluded from this requirement). Chemical herbicides may be used in small affected areas if manual methods are ineffective. The use of herbicides and pesticides for maintenance purposes on revegetated areas or within the habitat enhancement area described in BIO-4 below shall be done in a manner	CDWR will incorporate revegetation requirements for temporarily impacted areas into the plans and specifications, and require compliance by the construction contractor. CDWR will monitor revegetation activities during construction, and maintain vegetation during the first two growing seasons in temporarily disturbed areas and spoil piles.	During construction activities and first two growing seasons after construction has been completed.

Table 6-1. Mitigation Monitoring Program

Impact	Mitigation Measures	Monitoring/ Reporting Requirement	Implementation Phase/Action
	consistent with United States Environmental Protection Agency (USEPA) label instructions, the California Department of Food and Agriculture, the Department of Health, and the Department of Industrial Relations.		
	BIO-2: Topsoil removed from permanently affected areas shall be temporarily preserved in stockpiles for replacement on the surface of the spoil pile(s) or revegetated areas. The top six inches or the A horizon if it can be determined by visual means shall be segregated as topsoil. Mixing of the topsoil shall be kept to a minimum during stockpiling. As much as possible the height of temporary topsoil stockpile(s) shall be kept to a maximum of five feet as long as there is sufficient space available. Stockpiles shall be formed in rows to avoid or minimize soil compaction. Topsoil stockpiles shall be protected from wind erosion consistent with mitigation measure AQ-1. They shall also be protected from water erosion, compaction, and any other actions that may cause loss, mixing, or other disturbance. Topsoil stockpiled for less than one year shall be stabilized and protected from wind or water erosion by any of the following options: chemical soil stabilizer; vegetated cover of native species or infertile grasses; tarp or other inert material; or watering at the surface. If topsoil must be stockpiled for more than one year, it shall be watered and seeded with native annuals known to exist in the project area or infertile grass seed to ensure the retention of nutrients and to sustain soil micro fauna. Topsoil placed on the surface of the spoil pile(s) shall be compacted to pre-project density and recontoured to ensure stability and continuity with existing topography. Because even the one-year time frame may result in a substantial loss of soil micro fauna, when soil is replaced it shall also be supplemented with live soil inoculum suited to the area. Inoculum may be obtained commercially or locally from adjacent areas depending on such factors as the availability of a local or commercial source, relative disturbance to source areas and the likelihood of success. Topsoil stockpiles shall be periodically inspected, especially during and after precipitation events, to monitor for erosion or soil loss. Areas where erosion or soil loss occurs shall be corrected with measures such as replanting the area with native or infertile vegetative cover; respraying the surface with soil stabilizer; reducing the height of the stockpile (if more than five feet in height); and/or reducing the slope of the stockpile surface. Corrective actions shall be implemented prior to the next rain event, but no more than seven working days after discovery of erosion or soil losses.	CDWR will incorporate short-term and long-term (greater than one-year) topsoil stockpile requirements and erosion control measures into the plans and specifications, and require compliance by the construction contractor. CDWR will monitor topsoil removal, stockpiling, and replacement activities during construction.	During construction activities.

Table 6-1. Mitigation Monitoring Program

Impact	Mitigation Measures	Monitoring/ Reporting Requirement	Implementation Phase/Action
	BIO-3: The disturbance or removal of vegetation within the project and construction footprint shall not exceed the minimum reasonably necessary to complete operations. Precautions to avoid damage to non-target vegetation by people or equipment shall include, but not be limited to the following: flagged construction area limits, strict adherence to established access roads by trucks and construction equipment, and minimized turning areas.	CDWR will incorporate the requirements of a Traffic Control Plan, which would include a description of flagged construction area limits, access roads for trucks and construction equipment, and turning areas, in the plans and specifications. Compliance by the construction contractor will be required. CDWR will monitor compliance at the construction site.	Prior to and during construction activities.
	BIO-4: The CDWR shall develop and implement a Habitat Enhancement Plan for an acreage equivalent to 1.1 acres for every acre of habitat permanently affected by the project (i.e., 215.5 acres). The enhancement area shall be located approximately southwest of the proposed Tehachapi East Afterbay project site incorporating part of the Oso Creek drainage. The goal of the Plan shall be to improve habitat resources similar to those that will be lost at the proposed project site. Some of the measures that shall be considered include installation of owl boxes or burrows, establishment of woody species or other plant species suited to existing hydrological conditions along the Oso Creek drainage, restoration of soil flora and fauna, reestablishment of hydrological connections, and control of exotics. Species known to already exist at the site based on survey lists provided in Appendix C or from other surveys within the project area shall be preferred in any revegetation effort. The Plan shall also consider the feasibility and effectiveness of transplanting plants or collection of seed from plants that will be impacted by the project footprint. The Plan shall provide measures to address incidental disturbance or impacts caused by implementation of any of the enhancement measures identified in the Plan. The Plan shall also incorporate mitigation measures BIO-14 and BIO-15 as well as other measures to improve habitat quality within the enhancement area. The Plan shall be submitted to the California Department of Fish and Game (CDFG) for their review.	CDWR will develop and implement a Habitat Enhancement Plan for an acreage equivalent to the acreage of habitat permanently affected by the project. This Plan will be submitted to CDFG for their review. The habitat enhancement area will be monitored to verify success criteria established in the Plan. Monitoring results will be provided to the CDFG.	Prior to and during construction activities, and five years thereafter, or until the success criteria for any habitat improvements to the enhancement area are achieved, whichever is longer.
	BIO-5: Pre-construction bird surveys shall be conducted to identify the presence of breeding pairs or active nests of special status bird species, species protected by the Migratory Bird Treaty Act (MBTA), or species protected by the California Fish and Game Code, within the project and construction footprint plus an additional buffer distance of 500 feet. The surveyed area, including the 500 foot buffer, shall also include existing and newly proposed access roads to the project site. Existing roads need to be included in the survey because of the anticipated increase in traffic disturbance and because portions of some existing roads are overgrown with vegetation. In the event that surveys indicate habitat occupied by breeding pairs or active nests of special status bird species, species protected by the MBTA, or species protected by the California Fish and Game code within 500	CDWR or its contractor will perform bird surveys prior to construction. Surveys will identify all active bird nests. Measures to reduce or avoid impacts to special status bird species or species protected by the MBTA will be incorporated into the plans and specifications that will be implemented in the event surveys are positive. CDWR will monitor compliance at the construction site.	Preconstruction surveys no more than 30 days prior to the initiation of construction activities and during construction activities.

Table 6-1. Mitigation Monitoring Program

Impact	Mitigation Measures	Monitoring/ Reporting Requirement	Implementation Phase/Action
	feet of the project or construction footprint, some or all of the following measures shall be implemented: • The occupied area plus an additional no disturbance zone will be flagged and/or fenced until a qualified biologist has determined that all young have fledged. The size of the no disturbance zone shall be determined in consultation with the CDFG and/or the United States Fish and Wildlife Service (USFWS). • Clearing and grubbing of vegetation shall be conducted during the months prior to March 1 and after July 30. CDWR shall consult with CDFG and USFWS when work schedules conflict with this general guideline and impacts to nesting birds protected under the MBTA or the California Fish and Game Code are imminent. • Where ambient noise levels are less than 60 dBA and it is determined that construction related noise will cause noise levels to exceed 60 dBA, or where the ambient noise levels are greater than 60 dBA and it is determined that construction related noise will cause noise levels to exceed the ambient level by 5 dBA, a temporary sound wall shall be constructed between the sensitive area and the construction related noise source. Monitoring shall be conducted at 50 feet and 100 feet from the sound wall or at the boundary of the sensitive habitat if the habitat is more than 100 feet from the construction site. This measure would be applicable to survey areas that yield positive results and would be limited to the breeding and nesting season for the sensitive bird species identified in the surveys. • Night lighting shall be carefully aimed, shielded and of the minimum reasonably necessary intensity to reduce illumination spillover from work areas that may impact migratory birds or plants and animals, in general. • If an active bird nest will be affected by construction activities within 500 feet of the nest, work shall be temporarily suspended within an appropriate buffer area as designated by the CDWR Mitigation Monitor.		
	BIO-6: Prior to construction, potentially suitable burrowing owl burrows present within 500 feet of the construction area and all access roads shall be surveyed by a burrowing owl expert to determine whether they are occupied. Unoccupied burrows shall be blocked to prevent occupation by burrowing owl using established CDFG methods and protocols. The CDFG shall be notified of any occupied burrows and these shall be monitored to determine their nesting status. No burrows with active nests shall be disturbed until a qualified biologist has determined that all birds have fledged.	A burrowing owl expert will complete surveys prior to construction according to CDFG survey protocol. CDWR will implement measures to reduce or avoid impacts to burrowing owls according to CDFG protocol for burrowing owl mitigation. If applicable, measures will also be incorporated into the construction contractor's plans and specifications. CDFG will be notified of any occupied burrows and the actions taken to reduce or avoid impacts. CDWR will monitor compliance at the construction site.	Prior to construction activities.

Table 6-1. Mitigation Monitoring Program

Impact	Mitigation Measures	Monitoring/ Reporting Requirement	Implementation Phase/Action
	BIO-7: A no-disturbance zone for burrowing owl shall be established within the unnamed drainage north of the project site. The no-disturbance zone shall extend 500 feet beyond the area where evidence of burrowing owl activity was identified (Figure 3-9). Although removed from the construction and project footprint or access routes, the no-disturbance zone will be established to reduce the risk of unnecessary or mistaken trespassing during construction. The zone shall be flagged in the field and identified in sensitive resource information provided to all construction workers (see BIO-9).	CDWR will incorporate the no-disturbance zone limits to protect burrowing owls into the plans and specifications, and require compliance by the construction contractor. CDWR will monitor compliance at the construction site.	Prior to and during construction activities.
	BIO-8: To reduce wildlife deaths from accidental falls into excavated areas, all deep or steep-walled excavated areas shall be covered, provided with wildlife escape ramps or surrounded by an approved exclusionary fence. The temporary fence shall be hardware cloth or of similar materials that are approved for use by USFWS and CDFG. All excavated areas shall be inspected daily, and the CDWR Mitigation Monitor shall be notified immediately for the removal of any trapped wildlife. To further protect wildlife, all food-related trash will be disposed of in closed containers and removed at least once a week. Feeding of wildlife shall be prohibited. It shall be prohibited to bring pets or hunt on the construction site.	CDWR will incorporate measures to reduce wildlife deaths into the plans and specifications, and require compliance by the construction contractor. CDWR will monitor compliance at the construction site.	During construction activities.
	BIO-9: A training program shall be implemented so that among other things, workers can visually recognize special status species that may be present on the project site, identify the location of no disturbance zones, and adequately understand and implement biological mitigation measures.	CDWR will incorporate a training program for construction personnel into the plans and specifications, and require compliance by the construction contractor, i.e., verification that all construction workers have completed the biological training program. CDWR will monitor compliance at the construction site.	Prior to and during construction activities.
Project construction is likely to affect the coast horned lizard and its habitat; mitigation measures that can feasibly be implemented will not be completely successful in avoiding a loss of individuals and their habitat.	**BIO-1 through BIO-4, BIO-8 and BIO-9** (above).	Please refer to BIO-1 through BIO-4, BIO-8, and BIO-9 (above).	Prior to and during construction activities.

Table 6-1. Mitigation Monitoring Program

Impact	Mitigation Measures	Monitoring/ Reporting Requirement	Implementation Phase/Action
	BIO-10: Focused surveys for the coast horned lizard shall be conducted within the unnamed drainage and the alluvial floodplain to the east, south of spoil pile #1, that present suitable habitat conditions for the lizard and that may be temporarily disturbed during construction and permanently affected by the bypass, access roads and rock slope protection. Surveys shall be conducted in September/October 2004 when the species is more active prior to winter hibernation. The surveys shall be conducted using established protocols to maximize the likelihood of observing the species, and shall rely on a combination of several walking surveys at times of the day when coast horned lizards are most active and scat surveys to indirectly estimate population size. The objective of the surveys is to estimate the extent of occupied habitat that overlaps with temporarily and permanently impacted areas. The estimated occupied area will be delineated on a map, flagged in the field and made available to all project personnel. This measure shall be planned and implemented in coordination with CDFG	A qualified biologist will perform focused surveys. CDWR will provide CDFG with the results of the survey including a map delineating occupied areas. The map will also be incorporated into project plans and specifications.	Prior to construction activities.
	BIO-11: The Oso Creek Drainage within the area that will be acquired to compensate for permanent impacts will also be surveyed according to the method described in BIO-10. A habitat assessment will be completed to determine if the site may be enhanced to improve suitable coast horned lizard habitat, and to potentially relocate coast horned lizards found during project construction. Potential enhancement measures that can be implemented in the compensation acreage, such as improving ground cover for the species, will be incorporated into the Habitat Enhancement Plan described in BIO-4.	A qualified biologist will perform surveys and a habitat assessment of the Oso Creek Drainage within the area that will be acquired to compensate for permanent impacts. The results, including potential enhancement measures for the coast horned lizard, will be incorporated into the Habitat Enhancement Plan. This Plan will be submitted to CDFG for their review.	Prior to and during construction activities.
	BIO-12: Despite the fact that exclusion, capture and relocation measures typically implemented to reduce impacts to coast horned lizards would be relatively ineffective during the winter months when the initial ground disturbance will occur, CDWR will consult with the CDFG to determine if such measures may still be implemented in such a way as to have a partial effect on reducing impacts to coast horned lizards. In addition, a Biological Monitor(s) will be present to capture coast horned lizards that are disturbed from their habitat and that are at risk during the initial ground disturbance. A protocol will be established in coordination with CDFG prior to ground disturbance to define the method of capture, handling and relocation of any coast horned lizards. Surveys defined in BIO-9 and BIO-10 will assist in establishing whether suitable relocation habitat may exist within the enhancement area defined in BIO-4.	CDWR will consult with CDFG to determine if potential capture and relocation measures typically implemented to reduce impacts to the coast horned lizard will be effective in reducing impacts to the lizard. CDWR will provide CDFG with a protocol for capture, handling, and relocation of any coast horned lizards during construction. The protocol will be incorporated into the project plans and specifications. A qualified biologist will capture coast horned lizards that are disturbed or at risk according to the agreed upon protocol. CDWR will monitor compliance at the construction site.	Prior to and during construction activities.

Table 6-1. Mitigation Monitoring Program

Impact	Mitigation Measures	Monitoring/ Reporting Requirement	Implementation Phase/Action
Project operation will affect sensitive species and their habitat.	**BIO-13**: Fine-mesh or metal exclusion fence shall be added to the bottom 18 inches of the reservoir fence to reduce entry of small mammals and reptiles.	CDWR will incorporate the addition of an exclusion fence along the bottom 18 inches of the reservoir fence into the plans and specifications, and require compliance by the construction contractor. CDWR will monitor compliance at the construction site.	At the completion of reservoir construction.
Project construction will affect segments of the unnamed drainage and Oso Creek, which are under the jurisdiction of the California Department of Fish and Game.	**BIO-14**: Any trees with a diameter at breast height (dbh) of two inches or greater that are damaged or removed as a result of the project shall be replaced at a ratio of 3:1. The number, species, approximate age, and size of the affected trees shall be determined prior to clearing and grubbing. The CDWR shall replace the trees according to the conditions defined by the CDFG in the Streambed Alteration Agreement.	CDWR will incorporate the requirements of a Habitat Enhancement Plan, which includes a plan for replacement and monitoring of replaced trees based on specified success criteria. This plan will be submitted to CDFG for their review. CDWR shall verify replacement of all trees and monitor until the success criteria has been achieved.	Prior to and during construction activities.
	BIO-15: Replaced trees shall be monitored for five years to ensure an 80 percent success rate. Trees shall survive without irrigation for at least the final two years of the monitoring period. Trees shall be replanted if the success criterion is not attained either through the originally planted trees or through natural recruitment. In addition to the criteria defined in this measure, CDWR shall follow other criteria tree replacement and monitoring as defined by CDFG in the conditions of the Streambed Alteration Agreement.	CDWR will incorporate the requirements of a Habitat Enhancement Plan, which includes a plan for replacement and monitoring of replaced trees based on specified success criteria. This plan will be submitted to CDFG for their review. CDWR shall verify replacement of all trees and monitor until the success criteria has been achieved.	Prior to and during construction activities, and five years thereafter, or until the success criteria for replaced trees is achieve, whichever is longer.
	BIO-16: Temporary improvements that may be needed for the southern project access where it crosses Oso Creek shall be done while the drainage is dry. Because this is an ephemeral drainage, it is feasible to carry out any improvements while the drainage is dry without the need to divert flows. Vehicles shall not be driven or equipment operated in water-covered portions of a stream or where riparian vegetation or aquatic organisms may be destroyed. The CDFG shall be consulted when construction activities can not avoid water diversion.	CDWR will incorporate the requirement of crossing drainage areas when dry, or where water diversions are necessary require consultation with CDFG, into the plans and specifications. Compliance will be required by the construction contractor. CDWR will monitor compliance at the construction site.	During construction activities.

Table 6-1. Mitigation Monitoring Program

Impact	Mitigation Measures	Monitoring/ Reporting Requirement	Implementation Phase/Action
	BIO-17: Improvements to or construction of the bypass culvert or access roads crossing either the unnamed drainage or Oso Creek drainage shall be maintained such that they do not constitute a barrier to downstream surface flow, or the upstream or downstream movement of aquatic or terrestrial life, or cause an avoidance reaction that impedes their upstream or downstream movement.	CDWR will assess and design access roads crossing drainage areas and the bypass culvert to avoid causing a barrier to downstream surface flow or movement of aquatic or terrestrial life. CDWR will incorporate access road and bypass culvert design requirements into the plans and specifications, and require compliance by the construction contractor. CDWR will monitor compliance at the construction site.	During construction and operation.
	BIO-18: If there is any temporary alteration to the low-flow channel or the bed and bank of the unnamed drainage or Oso Creek drainage these shall be returned as closely as possible to their original topography, configuration and width, without creating future erosion problems. Re-contoured slopes and all other cleared areas shall be stabilized to prevent erosion.	CDWR will incorporate the requirements for alterations to the low-flow channel or the bed and bank of the unnamed drainage and Oso Creek drainage into the plans and specifications, and require compliance by the construction contractor. CDWR will monitor compliance at the construction site.	During construction activities.
	Geology and Soils		
The project may result in substantial erosion.	**AQ-1** (above)	Please refer to AQ-1 (above).	Prior to and during construction activities.
	GEO-1: To reduce erosion at the project site, temporary and permanent cut and fill slopes shall be planted with fast growing native vegetative cover.	CDWR will incorporate erosion control measures into the plans and specifications, and require compliance by the construction contractor. CDWR shall monitor compliance at the construction site.	Prior to and during construction activities.
	GEO-2: To reduce erosion at the project site, slopes exposing weak or loose materials shall be protected with jute netting or similar material until vegetation becomes established.	CDWR will incorporate erosion control measures into the plans and specifications, and require compliance by the construction contractor. CDWR shall monitor compliance at the construction site.	Prior to and during construction activities.
	GEO-3: During construction, the contractor shall ensure that the length of time that soils are exposed is minimized to the maximum extent feasible to reduce potential erosion impacts.	CDWR will incorporate erosion control measures into the plans and specifications, and require compliance by the construction contractor. CDWR shall monitor compliance at the construction site.	Prior to and during construction activities.
	GEO-4: During site preparation activities (i.e., site clearing and leveling), the contractor shall apply water to cleared and exposed soils, as necessary, to prevent excessive wind erosion.	CDWR will incorporate erosion control measures into the plans and specifications, and require compliance by the construction contractor. CDWR shall monitor compliance at the construction site.	Prior to and during construction activities.

Table 6-1. Mitigation Monitoring Program

Impact	Mitigation Measures	Monitoring/ Reporting Requirement	Implementation Phase/Action
Landslides, lateral spreading, subsidence, or liquefaction could occur if measures are not taken to stabilize slopes located within the reservoir area.	**GEO-5:** To improve slope stability, the following measures shall be implemented: • The top of all permanent and temporary cuts shall be rounded to blend with the natural topography. • Slope stabilization measures such as flattening, removal of loose soil, or buttressing with compacted fill, are recommended depending on actual site conditions. • Engineered (compacted and sloped to drain) spoil fills shall have slopes no steeper than 2:1 (horizontal to vertical). Benching may be required on spoil fill slopes higher than 30 feet depending on the type of material wasted. • Scaling of loose material shall be performed as excavation activities proceed. • During construction, an on-site geologist or engineer shall observe the excavations and map the exposed soil conditions, and check the adequacy of the foundation and depth and extent of excavations for the construction of fills and the stability of cut slopes. • If there are changes in the concept or design of the project, an engineer shall review those changes to check that the conclusions and recommendations of the various geologic studies performed for the project area remain valid. • Prior to grading, an engineer shall review the final plans and specifications for conformance with the intent of the recommendations provided in the various geologic studies performed for the project area.	CDWR will incorporate slope stability requirements into the plans and specifications, and require compliance by the construction contractor. CDWR shall monitor compliance at the construction site.	Prior to and during construction activities.
	Noise		
Noise levels from construction-related off-site traffic and on-site construction equipment would be potentially adverse to local residences.	**AQ-2** (above) **NOI-1:** CDWR or its construction contractor shall limit off-site trucking activities (e.g. deliveries, export of materials, etc.) to the hours of 6:00 a.m. to 10:00 p.m. to minimize impacts to nearby residences.	CDWR will incorporate the requirements of a Traffic Control Plan, which would include hours for trucking activities, in the plans and specifications. Compliance by the construction contractor will be required. CDWR will monitor compliance at the construction site.	Prior to and during construction activities.
	NOI-2: In the event of complaints by nearby residents due to nighttime construction activities, the construction contractor shall monitor noise levels. Noise shall be measured at the property line of nearby residential uses. In the event that construction noise exceeds the applicable limits specified in the Noise Element of the Kern County General Plan [e.g., L_{50} (night) 40 dBA for rural residential], the responsible construction activity shall cease until feasible measures, such as temporary sound walls, are implemented to reduce nighttime noise levels. Nighttime noise thresholds shall be included in the construction contractor's contract with CDWR.	CDWR will incorporate noise limits and actions required in the event complaints are received in the plans and specifications. Compliance by the construction contractor will be required. CDWR will monitor compliance at the construction site.	Prior to and during construction activities.

Table 6-1. Mitigation Monitoring Program

Impact	Mitigation Measures	Monitoring/ Reporting Requirement	Implementation Phase/Action
	NOI-3: To the extent feasible, the construction contractor shall locate, store, and maintain portable and stationary equipment as far as possible from nearby residents.	CDWR will incorporate storage and maintenance locations for portable and stationary equipment in the plans and specifications. Compliance by the construction contractor will be required. CDWR will monitor compliance at the construction site.	Prior to and during construction activities.
Noise from intermittent maintenance activities, including regular civil maintenance and preventative maintenance, involving large construction-related equipment would be potentially adverse	**AQ-2** and **NOI-1 through NOI-3** (above), as applicable.	Please refer to AQ-2 and NOI-1 through NOI-3 (above).	Prior to and during construction activities.
	Transportation and Traffic		
Temporary disruption of traffic flows during construction, including lane blockages and temporary street closures.	**TRA-1:** CDWR shall develop and implement a detailed Traffic Control Plan (TCP), prepared by a registered Traffic Engineer. The TCP shall define the location of any roadway closures, traffic detours, haul routes, and hours of operation in accordance with professional engineering standards. The TCP shall also define the use of flaggers, warning signs, lights, barricades, cones, etc. according to standard guidelines outlined in the Caltrans Traffic Manual and the Work Area Traffic Control Handbook (WATCH).	CDWR will incorporate the requirements of the TCP in the plans and specifications, and require compliance by the construction contractor. CDWR will monitor compliance at the construction site.	Prior and during construction activities.
	TRA-2: Damage, due to construction traffic on SR-138 and the local roadways between SR-138 and the project site, shall be repaired upon completion of on-site construction activities.	CDWR will inspect the roadways upon completion of construction in consultation with CalTrans and the County to determine if repairs are needed. CDWR or its construction contractor will be responsible for completing necessary repairs.	After project-related construction activities completed.